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more compartments (i.e., hybrid refrigerators, hybrid freezers, hybrid refrigerator-freezers, and non-hybrid refrigerator-freezers): The maximum daily energy consumption in kilowatt hours per day (kWh/day), the total display area (TDA) in feet squared (ft²) or the chilled volume in cubic feet (ft³) as necessary to demonstrate compliance with the standards set forth in § 431.66, the rating temperature in degrees Fahrenheit (°F), the operating temperature range in degrees Fahrenheit (e.g., ≥32 °F, <32 °F, and ≤−5 °F), the equipment family designation as described in § 431.66, and the condensing unit configuration.

[76 FR 12451, Mar. 7, 2011; 76 FR 24775, May 2, 2011, as amended at 76 FR 38292, June 30, 2011]

§ 429.43 Commercial heating, ventilating, air conditioning (HVAC) equipment.

(a) *Sampling plan for selection of units for testing.* (1) The requirements of

§ 429.11 are applicable to commercial HVAC equipment; and

(2) For each basic model of commercial heating, ventilating, air conditioning (HVAC) equipment, efficiency must be determined either by testing, in accordance with applicable test procedures in §§ 431.76, 431.86, 431.96, or 431.106 and the provisions of this section, or by application of an alternative efficiency determination method (AEDM) that meets the requirements of § 429.48 and the provisions of this section. For each basic model of commercial HVAC equipment, a sample of sufficient size shall be selected and tested to ensure that—

(i) Any represented value of energy consumption or other measure of energy usage of a basic model for which consumers would favor lower values shall be greater than or equal to the higher of:

(A) The mean of the sample, where:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

and, \bar{x} is the sample mean; n is the number of samples; and x_i is the i^{th} sample;

Or,

(B) The upper 95 percent confidence limit (UCL) of the true mean divided by 1.05, where:

$$UCL = \bar{x} + t_{.95} \left(\frac{s}{\sqrt{n}} \right)$$

And \bar{x} is the sample mean; s is the sample standard deviation; n is the number of samples; and $t_{0.95}$ is the t statistic for a 95% one-tailed confidence interval with n-

1 degrees of freedom (from Appendix A).

and

(ii) Any represented value of energy efficiency or other measure of energy consumption of a basic model for which

consumers would favor higher values shall be less than or equal to the lower of:

(A) The mean of the sample, where:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

and, \bar{x} is the sample mean; n is the number of samples; and x_i is the i^{th} sample;

Or,

(B) The lower 95 percent confidence limit (LCL) of the true mean divided by 0.95, where:

$$LCL = \bar{x} - t_{0.95} \left(\frac{s}{\sqrt{n}} \right)$$

And \bar{x} is the sample mean; s is the sample standard deviation; n is the number of samples; and $t_{0.95}$ is the t statistic for a 95% one-tailed confidence interval with $n-1$ degrees of freedom (from Appendix A).

(b) *Certification reports.* (1) The requirements of § 429.12 are applicable to commercial HVAC equipment; and

(2) Pursuant to § 429.12(b)(13), a certification report shall include the following public product-specific information:

(i) Commercial warm air furnaces: The thermal efficiency in percent (%) and the maximum rated input capacity in British thermal units per hour (Btu/h).

(ii) Commercial packaged boilers: The combustion efficiency in percent (%) and the maximum rated input capacity in British thermal unit per hour (Btu/h) for equipment manufactured before March 2, 2012. For equipment manufactured on or after March 2, 2012, either the combustion efficiency in percent (%), or the thermal efficiency in percent (%) as required in § 431.87 and the maximum rated input capacity in British thermal units per hour (Btu/h).

(iii) Commercial package air-conditioning and heating equipment (except small commercial package air conditioning and heating equipment that is air-cooled with a cooling capacity less than 65,000 Btu/h): the energy efficiency ratio (EER in British thermal units per Watt-hour (Btu/Wh)), the coefficient of performance (COP) as necessary to meet the standards set forth

in § 431.97, the cooling capacity in British thermal unit per hour (Btu/h), and the type of heating used by the unit.

(iv) Small commercial package air conditioning and heating equipment that is air-cooled with a cooling capacity less than 65,000 Btu/h: The seasonal energy efficiency ratio (SEER in British thermal units per Watt-hour (Btu/Wh)), the heating seasonal performance factor (HSPF in British thermal units per Watt-hour (Btu/Wh)) as necessary to meet the standards set forth in § 431.97, and the cooling capacity in British thermal units per hour (Btu/h).

(v) Package terminal air conditioners: The energy efficiency ratio (EER in British thermal units per Watt-hour (Btu/Wh)), the cooling capacity in British thermal units per hour (Btu/h), and the wall sleeve dimensions in inches (in).

(vi) Package terminal heat pumps: The energy efficiency ratio (EER in British thermal units per Watt-hour (Btu/Wh)), the coefficient of performance (COP), the cooling capacity in British thermal units per hour (Btu/h), and the wall sleeve dimensions in inches (in).

(vii) Single package vertical air conditioner: The energy efficiency ratio (EER in British thermal units per Watt-hour (Btu/Wh)) and the cooling

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capacity in British thermal units per hour (Btu/h).

(viii) Single package vertical heat pumps: The energy efficiency ratio (EER in British thermal units per Watt-hour (Btu/Wh)), the coefficient of performance (COP), and the cooling capacity in British thermal units per hour (Btu/h).

(c) Alternative methods for determining efficiency or energy use for commercial HVAC equipment can be found in § 429.70 of this subpart.

[76 FR 12451, Mar. 7, 2011; 76 FR 24775, May 2, 2011]

§ 429.44 Commercial water heating equipment.

(a) *Sampling plan for selection of units for testing.* (1) The requirements of § 429.11 are applicable to commercial WH equipment; and

(2) For each basic model of commercial water heating (WH) equipment, efficiency must be determined either by testing, in accordance with applicable test procedures in §§ 431.76, 431.86, 431.96, or 431.106 and the provisions of this section, or by application of an alternative efficiency determination method (AEDM) that meets the requirements of § 429.48 and the provisions of this section. For each basic model of commercial WH equipment, a sample of sufficient size shall be selected and tested to ensure that—

(i) Any represented value of maximum standby loss or other measure of energy usage of a basic model for which consumers would favor lower values shall be greater than or equal to the higher of:

(A) The mean of the sample, where:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

and, \bar{x} is the sample mean; n is the number of samples; and x_i is the maximum of

the i^{th} sample;

Or,

(B) The upper 95 percent confidence limit (UCL) of the true mean divided by 1.05, where:

$$UCL = \bar{x} + t_{0.95} \left(\frac{s}{\sqrt{n}} \right)$$

And \bar{x} is the sample mean; s is the sample standard deviation; n is the number of

samples; and $t_{0.95}$ is the t statistic for a 95% one-tailed confidence interval with n-

1 degrees of freedom (from Appendix A).

and

(ii) Any represented value of minimum thermal efficiency or other measure of energy consumption of a

basic model for which consumers would favor higher values shall be less than or equal to the lower of:

(A) The mean of the sample, where: